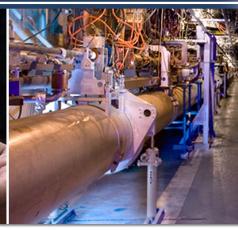
DOE Office of Science AMERICAN RECOVERY & REINVESTMENT ACT NEWSLETTER



Construction Begins on World-Class Light Source at Brookhaven National Laboratory

Groundbreaking for the NSLS-II Project at BNL June 15, 2009.

With an infusion of $150 million in Recovery Act funding, construction began in June on the National Synchrotron Light Source II (NSLS-II) at Brookhaven National Laboratory (BNL) in Upton, NY--a project that will advance energy research for the nation and create hundreds of jobs for Long Island over the next several years. Energy Secretary Steven Chu visited the laboratory earlier this year and announced $150 million from the American Recovery and Reinvestment Act for the facility, some of which went towards accelerating the construction of NSLS-II.

"The NSLS-II will allow the scientific community to focus on some of our most important scientific challenges while creating jobs and promoting a clean, affordable energy economy," said Secretary Chu. **Continued on page 2…**

INSIDE THIS ISSUE

Construction Begins on World-Class Light Source at Brookhaven National Laboratory (continued)

"Pioneering research will remain critical if the U.S. is to stay a global leader when it comes to innovation and competitiveness."

Artist's rendering of the National Synchrotron Light Source II.

NSLS-II will be an advanced, highly optimized, third-generation, medium energy storage ring that will provide sophisticated, new tools for discovery-class science – science that will enhance national and energy security and help drive abundant, safe, and clean energy technologies. The x-ray brightness and resolution of NSLS-II will be worldleading, exceeding those of any other light source currently existing or under construction, and it will be 10,000 times brighter than the present light source at Brookhaven Lab.

Torcon, Inc., a New Jersey firm with many projects in New York state, has been chosen to construct the building that will house the accelerator ring, the largest component of the machine. Torcon estimates that 90 percent of the total construction contract cost of more than $170 million will be spent directly with Long Island contractors and suppliers. This phase of the facility's construction is expected to last through 2012.

For more information about the NSLS-II project, go to www.bnl.gov/nsls2.

"NSLS-II will provide the world's finest capabilities for x-ray imaging, with the ability to detect single atoms," said Brookhaven National Laboratory Director Samuel Aronson.

BNL Director Sam Aronson

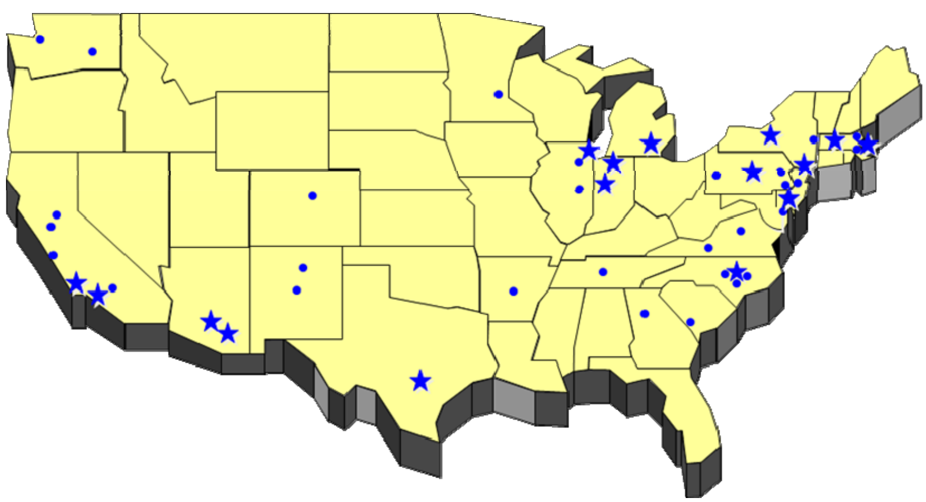
"It will provide advanced tools for discovery-class science in many fields including condensed matter physics, materials science, chemistry, and biology. Discoveries made at NSLS-II will enhance national and energy security and help drive abundant, safe, and clean energy technologies."

Energy Frontier Research Center Awards Go To Many Universities

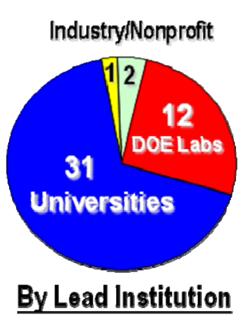
The White House announced in April that the U.S. Department of Energy Office of Science (SC) will invest $777 million in Energy Frontier Research Centers (EFRCs) over the next five years. In a major effort to accelerate the scientific breakthroughs needed to build a new 21st-century energy economy, 46 new multi-million-dollar EFRCs will be established at universities, national laboratories, nonprofit organizations, and private firms across the nation (White House Fact Sheet).

16 centers awarded with Recovery Act funding,
representing 45 participating institutions in 22 states plus D.C.

Energy Frontier Research Center Locations (★ Leads; ● Participants)



Supported in part by funds made available under the Recovery Act, the EFRCs will bring together groups of leading scientists to address fundamental issues in fields ranging from solar energy and electricity storage to materials sciences, biofuels, advanced nuclear systems, and carbon capture and sequestration (synopses of the 46 EFRC awards).



The 46 EFRCs, which are to be funded at $2–5 million per year each for a planned initial five-year period, were selected by peer review from a pool of some 260 applications received in response to a solicitation issued in 2008 by the U.S. Department of Energy (DOE), Office of Science. SC's Office of Basic Energy Sciences (BES) had initially planned to set aside $100 million per year to fund around 30 EFRCs. The availability of $277 million in Recovery Act funding has enabled BES to expand the number of EFRCs and to forward-fund 16

additional EFRCs for five years. (The decision to fund a particular EFRC via Recovery Act money was based on such factors as job-creation potential and an institutional ability to meet the Recovery Act's strict reporting requirements.)

Over 110 institutions from 36 states plus the District of Columbia will be participating in the EFRC research. In all, the EFRCs will involve nearly 700 senior investigators and employ, on a full- or part-time basis, over 1,100 postdoctoral associates, graduate students, undergraduate students, and technical staff (fact sheet). Roughly a third of these researchers will be supported by Recovery Act funding.

Researchers at the EFRCs will take advantage of new capabilities in nanotechnology, high-intensity light sources, neutron scattering sources, supercomputing, and other advanced instrumentation—much of it developed and supported by the DOE Office of Science—in an effort to lay the scientific groundwork for fundamental advances in solar energy, biofuels, transportation, energy efficiency, electricity storage and transmission, clean coal and carbon capture and sequestration, and nuclear energy.

The 46 EFRC awards span the full range of energy research challenges described in the Basic Research Needs (BRN) series of workshop reports, developed since 2000 under the auspices of the Basic Energy Sciences Advisory Committee. These reports outlined an ambitious and comprehensive agenda of basic research, across a range of disciplines, needed to significantly reduce dependence on imported oil and greenhouse gas emissions.

EFRCs will address one or more of the science grand challenges described in the report, *Directing Matter and Energy: Five Challenge for Science and the Imagination* . Many of the EFRCs address multiple energy challenges that are linked by common scientific themes—such as interfacial chemistry for solar energy conversion and electrical energy storage or rational design of materials for multiple potential energy applications. The distribution of the EFRC awards by broad topic areas (with the related BRN reports listed in parentheses) can be described as follows:

- Renewable and Carbon-Neutral Energy (Solar Energy Utilization, Advanced Nuclear Energy Systems, Biofuels, Geological Sequestration of CO2); 20 EFRCs
- Energy Efficiency (Clean and Efficient Combustion, Solid State Lighting, Superconductivity); 6 EFRCs
- Energy Storage (Hydrogen Research, Electrical Energy Storage); 6 EFRCs
- Crosscutting Science (Catalysis, Materials under Extreme Environments, other); 14 EFRCs

Berkeley Lab Recovery Act Construction to Save or Create an Estimated 700 Jobs

With the arrival of the first portion of the $115.8 million in federal Recovery Act funding allocated to Lawrence Berkeley National Laboratory (Berkeley Lab) in Berkeley, CA, work has already started to inject the money directly into the economy. The Lab's Facilities division, which will receive the majority of the funding since much of it is slated for laboratory construction and infrastructure, has hired project managers and other personnel and is poised to assign work to subcontractors.

Bevatron mezzanine electronics cabinets stripped of internals.

Almost $70 million will go towards nine construction projects at Berkeley Lab; at the peak, it is estimated that these projects will generate up to 700 jobs, including local employees and contractors as well as suppliers in California and around the nation. The money is part of the $1.6 billion in Recovery Act funding that was allocated to the Department of Energy's Office of Science.

"We're proud to be able to add so many new jobs as a result of this investment," said Berkeley Lab's Interim Director Paul Alivisatos. "We anticipate being able to generate even more jobs both within the community and around the country as we put the funds to work to upgrade our infrastructure and purchase equipment to conduct next-generation science."

The three largest of the nine projects have already been underway: demolition of the Bevatron, an obsolete accelerator facility decommissioned in 1993, slated to receive about $14 million in Recovery Act funds; construction of the Advanced Light Source (ALS) User Support Building, also getting about $14 million; and the second phase of a seismic upgrade of Lab facilities, $15 million. All are multi-year projects; the boost from the Recovery Act funding will allow the projects to finish as much as a year earlier than scheduled. The ALS User Support Building as well as the modernization of Building 74 is designed to achieve certification as a high-performance green building.

Another project getting Recovery Act money is a laser-based accelerator facility called BELLA, the Berkeley Lab Laser Accelerator. BELLA was allocated $19 million, of which about $7 million will go to improvements to Building 71, such as building a clean room for the laser. With its ability to deliver enormous energy boosts to charged particles over extremely short distances, laser-based acceleration technology could be the future of high energy physics.

The major decommissioning of Berkeley Lab's Bevatron is being aided by Recovery Act funds.

The remaining five construction projects would likely not have been possible without Recovery Act funding and will go a long way towards accelerating research projects in materials science, solar energy, and nanoscience. Buildings 62 and 66 will get an extensive upgrade of lab space and infrastructure. Other projects are to replace the failing transformer at the Grizzly Peak substation with a modern energy-efficient transformer and upgrade Buildings 2 and 6 (the ALS). All five are expected to be completed in 2010 or early 2011.

"The $16.3 million for these five smaller projects will allow the Lab to refocus its budget to additional high-priority needs," said Jim Krupnick, the Lab's Chief Operating Officer.

Of the estimated 700 new jobs created by these nine construction projects, about half will be on-site at the Lab, including staff and contractors, and the other half will be off-site, including workers who supply the transformer, building materials, and other equipment to be used in the construction.

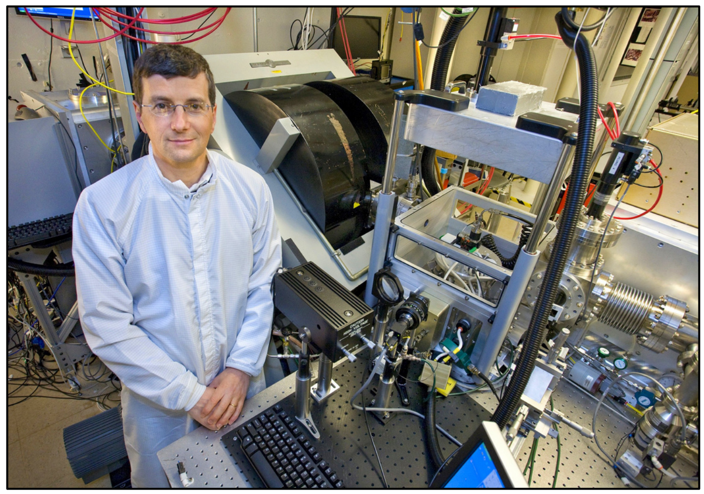
In addition to the construction projects, also included in the $115.8 million for Berkeley Lab is a portion of the $69 million that is being directed towards the creation of a prototype high-speed data network that will enhance the Office of Science's networking capabilities and benefit the commercial telecommunications sector.

BELLA: Accelerating Science by Accelerating Electrons

Berkeley Lab scientists stunned the world in 2006 when they proved they could accelerate electrons to very high energies (1 GeV, or a billion electron volts) in a distance of centimeters rather than hundreds of meters. Using the same concepts, those scientists plan to take the project to the next level and build a laser-based accelerator capable of zapping electron beams to energies exceeding 10 GeV in a distance of just one meter.

When completed in about four years, the Berkeley Lab Laser Accelerator, or BELLA, will demonstrate the promise of a novel and compact method of accelerating high-energy particles, making use of a series of synchronized laser systems. The results will be of interest not only to high-energy particle physicists but also to chemists, biologists, doctors, and national security officials.

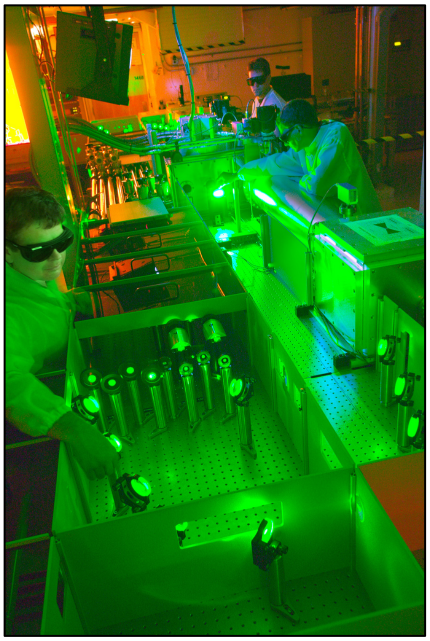
BELLA, which will receive $20 million in funding from the Recovery Act, was the only science project on the list for Berkeley Lab when the Department of Energy announced $115.8 million in Recovery Act funding for the laboratory in March. The rest is allocated for construction and upgrades of office and laboratory space and for building a prototype high-speed data network.



Wim Leemans is the project leader of BELLA, a planned laser plasma accelerator that will receive $20 million from the American Recovery and Reinvestment Act.

With a total budget of about $28 million, BELLA is expected to generate approximately 50 jobs. That includes both on-site workers, such as laser technicians, engineers and construction teams to upgrade the building that will house the laser, and off-site workers at the companies that will supply the supporting systems. About $7 million will go towards construction and safety; the rest will go towards procuring the laser and everything needed to assemble and run it, such as optical, diagnostic, and other technical systems. The entire system will be housed in an existing building at Berkeley Lab, which will be reconfigured and upgraded to include a clean room, new laser lab space and additional shielding.

Project leader Wim Leemans has spent much of his nearly 18 years at Berkeley Lab building lasers and working with laser accelerators. Collaborating with Simon Hooker of the University of Oxford, he and members of his group achieved a major breakthrough in 2006 when they broke the world record for laser-wakefield acceleration, a technique in which particles are accelerated by waves in plasma generated by intense pulses of laser light. In the wake of the laser pulse, electrons surf the waves of the ionized gas. Leemans and coworkers used this concept to accelerate electron beams to energies of more than 1 GeV in a distance of just 3.3 centimeters. Compare that to the Stanford Linear Accelerator Center, or SLAC, which takes 2 miles (3.2 kilometers) to boost electrons to 50 GeV.



From left, Berkeley Lab's Csaba Toth, Joseph Wallig, and Wim Leemans working with a 40-terawatt laser.

Although the main purpose of the project is to develop a new generation of more compact accelerators for high energy physics research, laser plasma wakefield technology has several potential applications. A multi-GeV beam could be used to produce highly-collimated, high-energy photons that could penetrate cargo in a nondestructive way, allowing inspectors to remotely "see" inside a package, which would be highly useful for national security. BELLA could also be used to build free-electron lasers (FEL). Like all lasers, FELs emit energetic beams of light. But unlike conventional lasers, they operate on a different set of principles that make them highly tunable. Because of this property, free-electron lasers can provide extraordinarily valuable tools for materials scientists, chemists, biologists, and researchers in various fields working on problems in fundamental energy research, allowing them to probe ultrashort, nanoscale phenomena. Their tunability also makes them useful for medical diagnosis.

Finally, with some modification, BELLA could produce a narrow bandwidth x-ray beam that could be used to take very high-resolution x-ray images for medical use. If the laser technology that drives the laser plasma accelerators keeps on improving by becoming less expensive and more compact, it could one day be an alternative to conventional x-ray machines, offering a new technique for better images with reduced x-ray dose.

Laser plasma accelerators have the potential to drastically cut the costs of performing accelerator-based scientific experiments due to their much reduced size compared to conventional accelerators of the same energy. While it may be decades before a laser plasma accelerator is built for basic physics research, BELLA represents an essential step towards investigating how more powerful accelerators of the future might be more compact. Systems like BELLA hold the promise of making possible a table-top accelerator with particle energies in the tens of GeV range that could be compact and affordable enough for a wide range of applications.

On the international stage, plasma wakefield accelerator research is highly competitive. Groups in the UK and France are working feverishly to best the record set by Leemans' group in 2006. China has also deemed it a high-priority growth area. "Everybody's trying to get to 10 GeV now," said Leemans. "It's a big deal. If the project goes according to schedule, we have the best technology to do it first."

Hunting for Neutrinos in Minnesota

Construction crews began digging at the future site of the NOvA neutrino detector facility in Ash River, MN, on June 1. The facility is designed to detect neutrinos originating at DOE's Fermi National Accelerator Laboratory (Fermilab) 500 miles away in Batavia, IL.

A construction crew began clearing and leveling roads at the NOvA site earlier this month.

The Recovery Act provided funds for the civil construction project.

"It's pretty much earth work now," said Davin "Buddy" Juusola, senior project manager for Adolfson & Peterson. But once the dirt is cleared, the construction crew will face the Canadian Shield, a mass of 2.7 billion-year-old Precambrian rock that stretches 3 million square miles across Canada and dips into a small northern edge of the U.S.

Crews from Adolfson & Peterson often work with rock, but blasting at the NOvA site will present a unique challenge, said Juusola, who has worked with the construction company for nine years.

The crew will blast down 50 feet to accommodate the NOvA, or NuMI (Neutrinos at the Main Injector) Off-Axis Electron Neutrino Appearance, detector facility. The laboratory will house a 15,000-ton particle detector that physicists will use to study a beam of neutrinos originating at Fermilab.

Members of the crew have talked to local residents about the project, Juusola said. "They seem very excited. They're very receptive to it."

The appeal goes beyond an interest in the science. Local supplier Seppi Brothers Concrete Products, based in Virginia, MN, will provide concrete for the site, and other businesses will likely become involved.

Juusola said this will be his first experience building a laboratory.

"There are not too many neutrino labs built," he said. "It's unique, which makes it exciting. It's a nice project to have on your resume." Neutrinos have helped to shape the galaxies and are among the most abundant particles in the universe, a billion times more abundant than the particles that make up stars, planets and people.

SLAC: Towards the Tabletop Accelerator

Secretary of Energy Steven Chu spoke at SLAC in June, urging researchers to confront the energy challenge.

A new experimental facility being created at SLAC National Accelerator Laboratory (SLAC) in Menlo Park, CA, aims to shrink the size—and costs—of future particle accelerators. The Facility for Advanced Accelerator Experimental Tests, or FACET, will leverage decades of leading accelerator science at the Department of Energy's SLAC National Accelerator Laboratory to develop next-generation technology.

The FACET team dreams of linear accelerators that are much more compact than the existing SLAC linac—even thousands of times more compact. "You could take our entire two-mile linac and double its energy in just one additional meter," said project manager Andrei Seryi. Though this new concept is still theoretical, FACET will use part of the SLAC linac to test the principle that will make it possible: plasma wakefield acceleration.

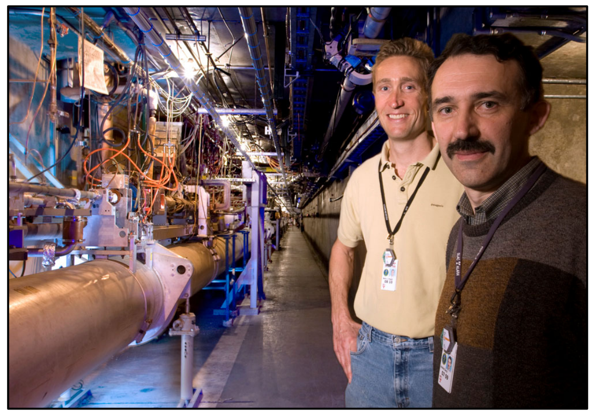
Here's how it works: The linac zips a compressed bunch of electrons about a tenth of a millimeter long down its length. A small piece of metal called a notch collimator splits the bunch in half, leaving two identical bunches. The first bunch, called the "drive bunch," rams into a cloud of gas, stripping its atoms of electrons and creating an ionized gas, or plasma.

"You can think of the drive bunch creating a wave in the plasma," said SLAC physicist Mark Hogan, who leads the scientific program at FACET. "The picture everybody uses is that the accelerated electrons are surfers and they're riding the wave." Because the electrons in the bunch and the electrons from the gas are both negative, they repel each other and the electrons in the gas are driven out of the bunch's path. The drive bunch leaves positively-charged ions in its wake. This attracts the electrons from the gas, so that they return and gather just behind the second, "witness" bunch as it travels through. The electrons from the gas repel those in the witness bunch, pushing it forward with a very high accelerating gradient.

In this way, the drive bunch transfers its energy to the witness bunch, all in the space of about one meter. The research at FACET will explore both acceleration and beam quality, and it will demonstrate a single stage of a plasma acceleration reaching energies as high as 25 GeV. The next generation of accelerators may use several such plasma stages in a row, adding the energy from as many as 20 drive bunches to a single witness bunch to attain enormous energies in cramped quarters.

“This concept shrinks the linac length down by at least a factor of ten, and the cost down by a factor of anywhere from five to ten,” Hogan said.

The idea of using plasma to accelerate electrons was demonstrated in single-bunch experiments using SLAC’s Final Focus Test Beam facility by a collaboration from SLAC; the University of California, Los Angeles; and the University of Southern California. The collaboration plans a detailed experimental program at FACET, and the FACET team is in active discussions with other interested scientists from across the country. Experiments under consideration range from fundamental acceleration concepts to studies of beam interactions with crystals or material damage with FACET's ultra-intense beams.



Andrei Seryi (Project Manager) and Mark Hogan (Chief Experimental Scientist) standing in the accelerator tunnel where future FACET experiments will take place.

FACET will also push the frontiers in solid-state physics and basic energy science. The intense beam fields could be used to study magnetic switching in materials used for recording devices, which could make speedier hard drives. Furthermore, if the plasma wakefield acceleration concept works, it might be used to double the energy of the Linac Coherent Light Source with just 30 cm of plasma—a thrifty route to higher energies compared to current technology. “This could be a great savings, though of course it’s still a very preliminary concept,” Seryi cautioned.

In addition to electron accelerators, pioneering high-energy physics requires colliders that smash electrons and positrons together. Plasma wakefields can accelerate positron as well as electron bunches, using electron driving bunches. But in the SLAC linac, the drive bunch and witness bunch are too far apart. To bring them closer, FACET will use a new technology called a sailboat chicane: a U-shaped series of magnets. The leading positron bunch traces the entire length of the U, while the electrons skip along the top. The electrons reach the end of the chicane first, and the positrons slip into position a tenth of a millimeter behind, perfectly poised for acceleration.

“SLAC is one of the few places in the world that makes positrons, but we’ll be the only place in the world that has high-energy positrons with the short bunch lengths necessary for plasma wakefield acceleration, and thus the only place where you can study them.” Hogan said. “Positrons are mostly unknown territory.”

Initial research and development for FACET got a boost this spring, in the form of $2 million of support from the Recovery Act. To proceed from concept to the complete facility, the project faces several DOE reviews, with the next one in late July. If all goes well, the team hopes to begin construction in October, and see the first electrons within the next two years.

Honing Today's "Supermicroscopes"

Workers prepare site for the Recovery Act-funded Linac Coherent Light Source Ultrafast Science Instruments (LUSI) at SLAC.

"Observing" atoms and molecules is not quite the same as, say, observing a home-run baseball on its way out of the ballpark. Observations at the nanoscale are governed by quantum effects, and in particular, the well-known Heisenberg Uncertainty Principle. In observing, an electron, for example, you change it. That is why to get a fuller picture of how matter behaves at the atomic and molecular levels, you need to approach it from many different "angles."

On the East Coast, the Office of Science is building the NSLS-II, which will provide unprecedented spatial and energy resolution. On the West Coast, the Office of Science is constructing the Linac Coherent Light Source (LCLS), another "supermicrcoscope" that will provide unprecedented resolution in the crucial dimension of time--at what is called the "ultrafast" scale. Both tools will be crucial to the fundamental scientific breakthroughs we need to revolutionize our energy economy--and for advances in a variety of other disciplines, ranging from materials sciences to biology.

The first portion of Recovery Act funding allocated to SLAC includes funds to accelerate the design and construction of three LCLS instruments: the x-ray Pump Probe, the Coherent x-ray Imaging and the x-ray Correlation Spectroscopy instruments.

The LCLS Ultrafast Science Instruments project, or LUSI, which is building the instruments, has received $33.6 million in Recovery Act funds this year to complete the instruments sooner than previously planned. "This stimulus money means that we can ramp up our schedule, purchasing parts and materials earlier than expected," said LUSI Project Manager Tom Fornek. "This way, we pump money into the economy quicker."

Prior to the announcement of the Recovery Act funding, the LUSI project planned to build these instruments one at a time over the course of several years, with installation of the final instrument scheduled for 2012. But now that the money for the three instruments has been released early, more work can be done in parallel. This will allow LUSI project to be completed earlier than planned.

Using the LCLS's ultrafast pulses of x-rays, these instruments will make images and even stop-motion movies of single molecules, addressing questions in a wide range of fields, including chemistry, medicine and materials science. And, thanks to the Recovery Act funds, they will be able to do it earlier than expected.

New Science, New Funding, New Jobs

When the going gets tough, the tough turn to science. And the recent revitalization of U.S. science has brought new projects—and jobs—to SLAC National Accelerator Laboratory. As a result, we need you!

Just over a year ago, budget cuts led to project closures and layoffs at the lab. Today, renewed national science funding and the federal Recovery Act are energizing both new and existing programs for SLAC—programs that will have an impact on our surrounding communities. "We have almost 100 open positions now, including more than 60 that are still accepting resumes," said Human Resources Manager Lisa Mongetta. "This is about 50% more than we would typically have. Given SLAC's project plans, we expect the number of employment opportunities to continue to be above the norm through this year and into the next."

The upward trend in SLAC jobs is a direct result of renewed national science funding, Recovery Act projects, and new directions in the lab's scientific focus.

"On January 7, 2008, I had to announce the largest layoff in the history of the lab," said SLAC Director Persis Drell."This year I had the joy of announcing increases in SLAC science budgets as well as millions in stimulus funding from the Recovery Act.

"What is most important is what these funds will allow the lab to do,"

"What is most important is what these funds will allow the lab to do," Drell said. "The welcome fiscal change has both stabilized and accelerated SLAC's development as a world-class lightsource facility, a leader in accelerator physics, and a top international partner in particle physics and astrophysics."

SLAC Director Persis Drell

Drell said. “The welcome fiscal change has both stabilized and accelerated SLAC's development as a world-class lightsource facility, a leader in accelerator physics, and a top international partner in particle physics and astrophysics.”

Notably, projects funded under the Recovery Act will speed scientific research with the world's first hard x-ray laser, establish a center for advanced plasma-driven accelerator research, and shore up the infrastructure to support SLAC science and safety. But this work takes ready hands. In particular, SLAC is seeking engineers, scientists, and project control professionals to help with the business side of SLACscience projects. Several executive positions are also open, including a director of acquisitions and chief information officer.

"This is a tremendously exciting time to be at SLAC," said Human Resources Director Larry Young. "There are so many great opportunities, and a chance to be part of cutting-edge science at part of the Stanford campus, one of the most beautiful settings in California. Our list of new hires includes electronic engineers, physicists, software developers, and financial analysts, as well as administrative and technical jobs."

Job listings for SLAC and joint SLAC/Stanford appointments are available through the SLAC Human Resources Web site: http://www-public.slac.stanford.edu/hr/jobs/search.asp.

ORNL Begins Work on Recovery Act-Funded Research Facility

Site of ORNL CMS Building.

In May, Oak Ridge National Laboratory (ORNL) broke ground on a $95 million Chemical and Materials Sciences (CMS) facility. Construction of the new laboratory facility is supported by funds from the Recovery Act enacted by Congress earlier this year.

With a name reflecting its mission, the Chemical and Materials Sciences Building will provide up to 160,000 square feet of laboratory and office space that will be used to design new materials for energy-related products such as batteries and solar panels.

”We have challenged our national laboratories to come up with innovative ways to replace our outdated energy practices with clean and renewable technologies,” said Energy Secretary Steven Chu. “We are giving the scientists and researchers at these facilities the tools to develop a clean energy economy that creates jobs and helps combat climate change.”

The $60.6 million in Recovery Act funding for the facility is part of an initial $1.2 billion for projects supported by the DOE Office of Science announced by Secretary Chu in March. The new funding means that the Chemical and Materials Sciences facility will be completed in 2011, nearly a year ahead of the original schedule. Approximately 120-150 workers will be onsite daily during the construction peak.

ORNL Director Thom Mason said that a number of energy technology challenges involve materials. “This new facility will be the ideal place to help the Department of Energy solve some of the most important energy challenges of the next decade,” Mason said. The three-story Chemical and Materials Sciences Building will feature 50 laboratories supported by 164 offices and 120 work stations. The building will be LEED-Gold certified, meaning it meets strict standards set by the Green Buildings Council for environmental sustainability.

Oak Ridge National Laboratory Director, Thom Mason, discusses the Chemical and Materials Sciences facility.

The new facility will provide space for up to 300 laboratory researchers and staff. It replaces laboratory and office space constructed in the early 1950s that is plagued with high energy and maintenance costs.

The construction contractor for the new building is McCarthy Building Companies, Inc. The architectural and engineering firm is Cannon Design.